

A NEW SPECIES OF *THERETRA* HÜBNER  
(LEPIDOPTERA: SPHINGIDAE) FROM VANUATU

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**Abstract**

*Theretra aquila* sp.nov. is described from the island of Espiritu Santo, Vanuatu. It is distinguished from the closely allied species *T. silhetensis* (Walker) by wing markings and male genitalic structures.

**Introduction**

Two subspecies of *Theretra silhetensis* (Walker) are recognised (Rothschild and Jordan 1903): *T. s. silhetensis*, found from Sri Lanka and India, across south-east Asia to China, Taiwan and Japan, and *T. s. intersecta* (Butler), found in Sulawesi, Moluccas, Philippines, Guam, New Guinea, Australia, Solomon Islands, Vanuatu, New Caledonia, Fiji and Samoa (D'Abrera 1987, Robinson 1975).

In 1987/88 two males and a female of a species closely resembling *Theretra silhetensis* were collected by RBL from Espiritu Santo, a northern island of Vanuatu. Although similar in general appearance to *T. s. intersecta*, these specimens clearly differed in several characters, especially in colour tone, and were found to represent an undescribed species.

*Theretra aquila* sp. nov.

(Figs 1-2, 5)

*Types.* VANUATU: *Holotype* ♂, Port Olry, Espiritu Santo, 14.i.1988, R.B. Lachlan. *Paratypes*: 1♀, same locality, but 21.i.1988; 1♂, Luganville, Espiritu Santo, 22.xii.1987, R.B. Lachlan. *Holotype* in Australian Museum, Sydney; *paratypes* in collection of RBL.

*Male.* Head pale brown with a very pale buff stripe each side. Antenna light brown.

*Thorax.* Above light brown with an indistinct mid-dorsal pale buff stripe, a subdorsal narrow golden orange stripe opposite forewing bases and a broad pale buff band above wing bases. Below with brown pilosity.

*Abdomen.* Above light brown as on thorax, with a silvery-white mid-dorsal narrow stripe fading at anterior end and two less distinct golden orange mid-lateral stripes. Below dark brown with a thin pale brown transverse stripe on posterior margin of each sternite.

*Legs.* Coxae with long orange-brown setae. Femora with short dark brown setae.

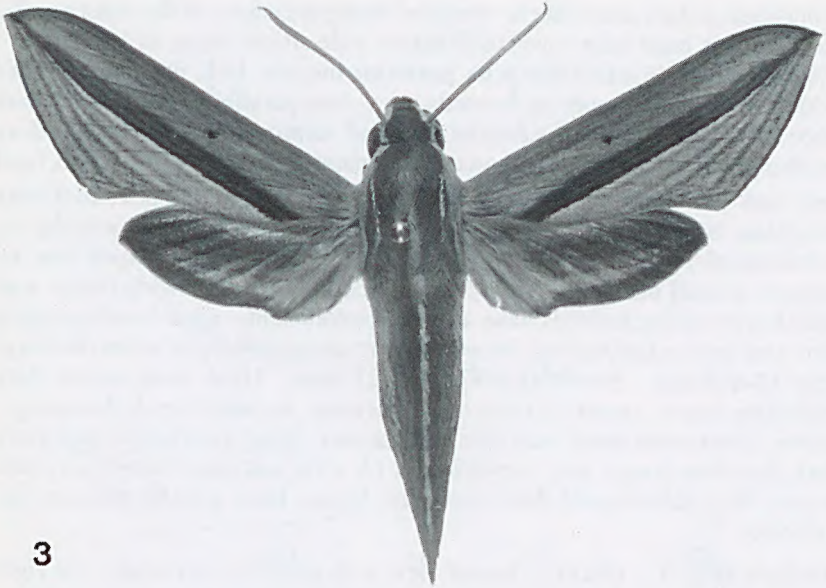
*Wings.* Forewing above dark chocolate brown on costal and subcostal areas, the latter with some indistinct pale streaking; thin pale brown irregular band immediately posterior of dark costal/subcostal area terminating just short of

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Figs 1-2. *Theretra aquila* sp.nov., paratype female: (1) upperside; (2) underside.





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4

Figs 3-4. *Theretra silhetensis intersecta* (Butler), male from Espiritu Santo, Vanuatu: (3) upperside; (4) underside.

wing apex; a dark chocolate brown band along the centre of the wing parallel to costa, this band with a pair of indistinct pale stripes along its length and a distinct thin pale band along its posterior margin; buff postmedian band widest at base and tapering towards apex runs parallel to dark band; dark chocolate brown curved subterminal band terminating in a point before reaching vein  $M_2$ ; thin pale brown line separating curved subterminal band and dark chocolate brown terminal band which thins at apex; thin dark chocolate brown line from middle of inner margin to tornus joining the subterminal and terminal brown bands; very fine orange-brown line on termen; a small black dot in middle of subcostal area. Forewing below with dark brown paling towards base; a broad broken subterminal band bearing a thin dark brown line, curved between veins, along its length; other markings very ill-defined. Forewing length 25-27 mm. Hind wing above dark chocolate brown, most distinct along termen; an indistinct light orange-brown subterminal band; anal lobe light brown. Hind wing below uniformly dark chocolate brown; area between vein 1A + 2A and inner margin very pale brown; thin subterminal dark chocolate brown lines usually present, but indistinct.

Genitalia (Fig. 5). Uncus in lateral view with apex flat and nearly at a right angle with dorsal margin; gnathos of similar thickness to uncus; valvae approximately ovate; sacculus with apical finger (harpe) weakly upturned at about  $45^\circ$ , remainder more or less straight, the subapical dorsal swelling distinct but weakly developed; aedeagus with cornutus evenly rounded at apex, fully spined dorsally, apical half only spined ventrally.

*Female* (Figs 1, 2). Similar to male. Forewing length 29 mm. Genitalia of the only available female not examined.

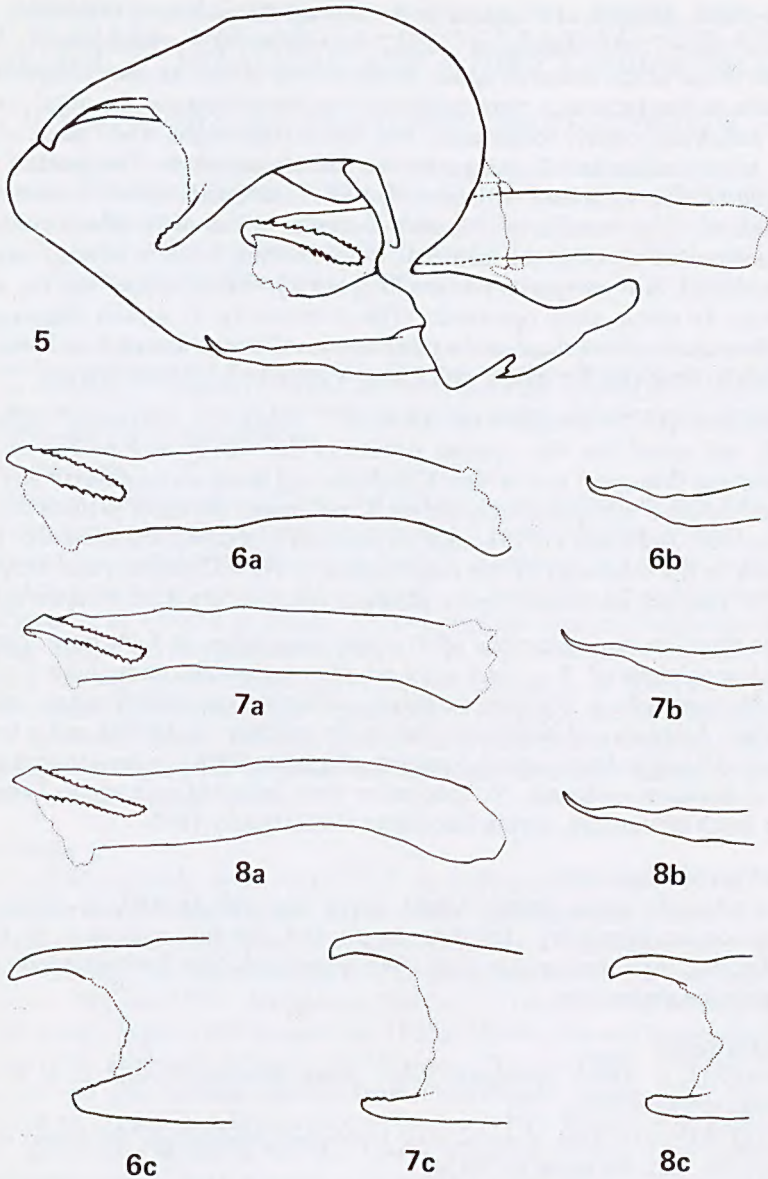
*Etymology*. The word *aquila* is derived from the Latin, meaning dark-coloured or blackish; it refers to the overall appearance of the species.

*Distribution*. *Theretra aquila* is known only from Espiritu Santo, a northern island of Vanuatu.

## Discussion

*T. aquila* most closely resembles the very widespread species *T. silhetensis* (Figs 3, 4), which is found sympatrically with it. *T. aquila* is readily distinguished from *T. silhetensis* by its much darker colouring. In particular, the forewing upperside of *T. aquila* shows very dark chocolate brown costal, subcostal, subterminal and terminal areas which are in contrast with the much paler equivalent areas of *T. silhetensis*. Further, the dark brown underside to the wings and body of *T. aquila* is in contrast to the pale underside of *T. silhetensis*. No intergrades were found between *T. aquila* and *T. silhetensis*. *T. silhetensis* shows only marginal variation in markings throughout its extensive range across South-east Asia.





**Figs 5-8.** Male genitalia in lateral view of *Theretra* spp.: (5) *T. aquila*, paratype, Luganville, Espiritu Santo, genitalia *in situ* but with right valva removed; (6a-6c) *T. margarita*, Australia, a - aedeagus, b - sacculus, c - uncus and gnathos; (7a-7c) *T. silhetensis intersecta*, Vanuatu, a-c as above; (8a-8c) *T. oldenlandiae*, Papua New Guinea, a-c as above.

The male genitalia of *T. aquila* show minimal differentiation from those of *T. silhetensis*, *T. oldenlandiae* (F.) and *T. margarita* (Kirby) (compare Figs 5-8). The shape of the uncus of *aquila* is distinctive in that its apex is square-cut, more or less forming a right angle with the dorsal margin; the uncus apex of *T. silhetensis* clearly forms much less than a right angle, while those of both *T. oldenlandiae* and *T. margarita* are entirely rounded. The gnathos of *T. aquila* differs noticeably only from that of *T. margarita* which is much more thick-set. The sacculus of *T. aquila* is similar to that of *T. silhetensis* and *T. oldenlandiae* although the subapical dorsal swelling tends to be more strongly developed; in *T. margarita* this swelling is very well developed and the apical finger is much more upturned. The cornutus of *T. aquila* shows little differentiation from those of the other species although that of *T. oldenlandiae* tends to have smaller spines which follow the entire cornutal margin.

Robinson (1975) discussed the status of *T. silhetensis intersecta* (Butler) in Fiji and noted that this species occurs in the nearby archipelago of New Hebrides (Vanuatu) and in New Caledonia, but made no mention of any dark specimens or any species resembling *T. silhetensis* occurring in these regions. Likewise, Holloway (1979) made no mention of a dark *silhetensis*-like hawk moth in his treatment of the Lepidoptera of New Caledonia and D'Abbrera (1987) did not mention or figure anything resembling a dark *T. silhetensis*.

The three known specimens of *T. aquila* were taken at light traps together with specimens of *T. s. intersecta*, which are plentiful throughout Vanuatu (RBL, pers. obs.). Despite extensive collecting on other Vanuatu islands (Efate, Ambrym and Malekula) during the summer of 1987/88 and a further visit to Espiritu Santo during September/October 1989, no further specimens of *T. aquila* were found. No specimens were collected on a trip to Tanna, in the south of Vanuatu, during December 1993/January 1994.

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